DECISION NOTICE FINDING OF NO SIGNIFICANT IMPACT

Melvin Butte Vegetation Management Project and Site-Specific Forest Plan Amendments

USDA Forest Service Sisters Ranger District, Deschutes National Forest Deschutes County, Oregon

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Legal Location: T16S, R09E and T17S, R09E. Willamette Meridian

Introduction and Background

This Decision Notice (DN) documents my decision and rationale for the selection of Alternative 2 of the August 2016 final Melvin Butte Vegetation Management Project environmental assessment. The project will maintain and restore forest resiliency and forest health to provide habitat for interior forest species such as the Northern spotted owl and reduce the hazard of large scale wildfires on about 4,469 acres. There has been departure in conifer stands in the project area from the Historic Range of Variability (HRV) and vegetation treatments such as thinning from below and prescribed burning will create conditions that move stands towards the HRV over the long-term. Moving areas towards the HRV will help meet the purpose and need for action.

My decision is based on the existing condition of the project area and the subsequent need for action. About 88% of the project area is currently in overstocked conifer stands that indicate risk to important ecosystem elements such as old-growth ponderosa pine by disturbance factors such as wildfire, insects, and disease. Dense stands of trees are primarily a result of ingrowth from fire suppression and/or exclusion and past management activities such as clear-cutting (and subsequent replanting). Seventy-five percent of the project area is dominated by small trees less than 20 inches diameter at breast height with dense multi-story canopies, resulting in contiguous ladder fuels or plantations with uniform canopies and a high density shrub layer. About 2/3rd of the project area contains low to high levels of dwarf mistletoe. These acres are considered at high risk for bark beetle (mountain and western pine beetles) mortality, stand replacement fire, further dwarf mistletoe infection, and overall reduction in tree vigor and longevity among all size classes, including large old growth ponderosa pine. Under severe weather conditions, about 45% of the area is determined to have a high fire hazard.

The project area is located within the *Deschutes Collaborative Forest Project Area, Deschutes Skyline Landscape*, which was selected by the Secretary of Agriculture and an advisory committee in 2010 as a Collaborative Forest Landscape Restoration Project. The Melvin Butte Vegetation Management Project was initially presented to the Deschutes Collaborative Landscape Restoration Project Steering Committee in March 2014. A number of field trips were held with the collaborative working group to discuss forest health, silviculture prescriptions, and other related issues. Updates on the project were also presented by the Melvin Butte planning team in Bend, Oregon.

The Draft DN was distributed according to 36 CFR 218.7 providing a 45-day period for objection to be filed prior to making a final decision. On August 20, 2016 the legal notice was published in *The Bulletin* (Bend, Oregon) announcing the Predecisional Administrative Review (Objection) Period for the Draft Decision Notice and final Environmental Assessment for the Melvin Butte Vegetation Management

Project. An objection was filed by the Blue Mountain Biodiversity Project/League of Wilderness Defenders on October 6, 2016. See the section Predecisional Administrative Review for more details.

The project area is about nine air miles south of the city of Sisters, Oregon and is located on the Sisters Ranger District, Deschutes National Forest. The project area is about 5,375 acres.

Decision and Rationale

I have reviewed the final environmental assessment for the Melvin Butte Vegetation Management Project and the information contained in the project file. I have also reviewed and considered the public comments submitted on this project. I have determined that there is adequate information to make a reasoned choice among alternatives. It is my decision to select Alternative 2, including associated connected actions, project design criteria, and resource protection measures as described in the environmental assessment (final EA pages 37-53 and 55-73).

Specifics of the Decision

The *purpose* of the project is to maintain and restore forest resiliency and forest health in stands that provide habitat for interior forest wildlife species and pose a potential hazard of large scale wildfire in the Melvin Butte area.

There is a *need* to reduce fuel loadings and forest vegetation density to lessen the hazard of large wildfires to nearby communities and key ecosystem components, such as large old pine trees. Recent large fires such as the 2012 Pole Creek fire have dramatically changed the landscape leaving the project area isolated and thereby increasing the urgency of protecting the remaining forest.

The project area is currently at risk of stand replacement wildfire associated with insects, disease, and overstocking. The project area contains a designated Wildland Urban Interface (WUI) located along Forest Road 16. The project will also provide wood products to the local and regional economy as a byproduct of landscape level treatments (final EA pages 14-16).

Alternative 2 will treat about 4,469 acres in the project area, including hazardous fuels reduction in a designated Wildland Urban Interface. All silvicultural treatments take place in the Matrix land allocation as defined by the Northwest Forest Plan. Alternative 2 will produce about 6.6 MMBF of timber. About 64 timber related jobs will be created.

A Wildlife Habitat Retention Strategy was developed as part of the overall project design. The strategy used a combination of soil type productivity and future habitat needs to identify areas with the greatest potential to develop into mature multi-stored mixed conifer stands or areas more likely to develop single story ponderosa pine stands. Based on this strategy about 775 acres will be retained as no treatment blocks placed strategically across the project area (final EA page 18). Riparian Reserves could also serve as no treatment areas to provide connectivity across the project area; no Riparian Reserves will be treated under Alternative 2.

The project meets the Northwest Forest Plan standard and guideline C-44 which states that landscape areas where little late-successional forest persists old-growth fragments should be retained and protected. About 662 acres of old-growth fragments are found in the project area, including fragments less than 2.49 acres, and would be retained and protected under the short and long term.

Silvicultural treatments and the use of prescribed fire will help meet the desired future condition for forested vegetation (final EA page 16). Treatments include the thinning of plantations using variable density thinning techniques; dwarf mistletoe treatments; prescribed fire only treatments; thinning from

below in old-growth ponderosa pine stands; thinning from below in second-growth ponderosa pine stands; thinning from below with group openings in the mixed conifer plant association group (retaining all old growth ponderosa pine where present); and treatments to meet the objectives for the Scenic Views land allocation (Table 1). Secondary treatments include mastication/mowing of shrubs and the use of prescribed fire.

See Appendix Aof this Decision Notice for a map of Alternative 2; see Appendix B of this Decision Notice for the stand level prescription table.

Table 1. Summary of Treatment Acres

Treatment Type	Acres
Lodgepole Pine Improvement	249
Plantation Thinning	1,174
Pondarosa Pine Infected with Dwarf Mistletoe	160
Prescribed Fire	809
Thinning	998
Thinning with Group Openings	839
Scenic Views Enhancement	240
Total	4,469

For a detailed description of the treatments types see pages 37-40 of the final environmental assessment.

Ground-based logging systems will be used; only slopes less than 30% slope are included in timber harvest. Minor inclusions of slopes greater than 30% slope could exist within the interior of harvest units. These areas could either be long-lined to remove cut trees (no equipment will be allowed) or left as uncut areas (final EA pages 40-41).

Management of the project area is guided by the Deschutes National Forest Land and Resource Management Plan (LRMP), as amended by the Northwest Forest Plan (NWFP). The project area is primarily located on lands allocated to the *Matrix* land allocation. Most timber harvest and other silvicultural activities would be conducted in that part of the Matrix with suitable forest lands. About 5,208 acres of the 5,375 acre project area are located in the Matrix. The remaining 167 acres are allocated to the *Administratively Withdrawn* land allocation; proposed treatments in this land allocation include prescribed burning and some small tree ladder fuel reduction. No scheduled timber harvest will take place in the *Administratively Withdrawn* land allocation.

The project area does not contain the *Late Successional Reserve* (LSR) land allocation. No *Riparian Reserve* acres will be treated (final EA pages 5-8).

Deschutes National Forest Land and Resource Management Plan (LRMP) land allocations in the project area include *Scenic Views* (MA-9); *Old Growth* (MA-15); and *Front Country* (MA-18) (final EA pages 5-6).

The project is in compliance with all relevant standards and guidelines outlined in the Deschutes National Forest LRMP, as amended.

Road Closure, Road Decommissioning and Construction of Temporary Roads

My decision will decommission about 8 miles of road and close about 6 miles of road. Alternative 2 will construct about 0.80 miles of temporary roads to access stands for silvicultural treatment. Any temporary roads will be closed and restored after use. In 2015 a Transportation Analysis Report was completed to identify the minimum road system for the Deschutes National Forest. To support road closure, road decommissioning, and temporary road construction a supplemental Roads Analysis was completed for the project (final EA pages 10, 22, and 440-453).

Resource Protection Measures

My decision incorporates the Resource Protection Measures developed for the project (final EA pages 55-73 and Appendix B of this draft Decision Notice). Resource Protection Measures are an integral part of project design, were used to provide sideboards for the environmental effects analysis, facilitate the achievement of Forest Plan standards and guidelines, and will be carried through project implementation.

The following resource protection measures are integral to the project:

- Project design includes the retention of all snags (standing dead trees) across the project area.
 Snags will only be felled if they pose an OSHA safety hazard during timber harvest operations.
- A 30-acre Northern goshawk active nest core and a 400-acre post fledging area were identified in the project area; no density management or prescribed burning will take place in these areas.

Forest Plan Amendments

My decision includes two site-specific Forest Plan amendments as described in the final environmental assessment. The use of amendments to existing standards and guidelines follow guidance contained in the 1982 Planning Rule at 36 CFR 219.7 – Effective Dates and Transition. For a detailed discussion of the direct, indirect, and cumulative effects associated with the Forest Plan amendments see the final environmental assessment (final EA pages 22-32).

The existing standards and guidelines will be amended as follows:

- 1) Scenic Views standard and guideline M9-27 will be amended as follows: *Allow the visual effects of slash clean-up and fuels reduction for approximately a five year period.*
- 2) Scenic Views standard and guideline M9-90 will be amended as follows: *Allow forprescribed burn units toexceed the five acre minimum, where necessary, and allow tree canopy scorch height toexceed the 30% minimum some areas.*

The revised amendments willhelp meet the purpose and need for action, allow for operational flexibility in the Wildland Urban Interface, and assist in achieving the standards and guidelines for the Scenic Views land allocation.

Findings

The revised Scenic Views standards and guidelines will not appreciably change Forest-wide impacts disclosed in the Forest Plan Environmental Impact Statement, based on the following factors:

Timing

The effects of the revised Scenic Views standards and guidelines for implementing the Melvin Butte Vegetation Management Project are predicted to occur in the short-term (approximately 5 years after the start of treatment) for prescribed burning and post harvest activities.

Location and Size

The effects of the revised Scenic Views standards and guidelines are site specific and will only affect areas within the Melvin Butte Vegetation Management Project area boundary. About 1,217acres (23% of the total project area) will be affected by the use of the site-specific Forest Plan amendments.

Goals, Objectives, and Outputs

The revised Scenic Views standards and guidelines will not alter the long-term relationship between levels of good and services projected by the Forest Plan. There will not be any change in timber outputs over what might be available if the project was designed without the proposed amendments.

Management Prescriptions

The revised Scenic Views standards and guidelines will not change the desired future condition for lands and resources as outlined by the existing management direction in the Forest Plan in the short-term. It will not affect the entire Forest Plan planning area; only about 1,217 acres of National Forest System lands within the Melvin Butte Vegetation Management Project area will be amended. The proposed amendments will not change the Forest Plan allocations or management areas.

Conclusion

I find the two site-specific amendments will help meet the purpose and need for action, provide for more effective and efficient fuels treatments in the Timber/Mixed Conifer Foreground areas, help meet the desired future condition for lands located in a designated Wildland Urban Interface, in addition to providing safe egress of the public and ingress of fire suppression resources in the event of a wildfire, as well as meeting long-term management goals for the Scenic Views land allocation. In conclusion, I find the two site-specific Forest Plan amendments are not significant in light of the findings presented above and the effects analysis described in the final environmental assessment (final EA page 32).

Survey and Manage: Pechman Exemptions

My decision is consistent with the January 2001 Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage Protection Buffer, and other Mitigation Measures Standards and Guidelines.

The project utilizes the December 2003 species list. This list incorporates plant species changes and removals made as a result of the 2001, 2002, and 2003 Annual Species Review.

My decision applies two exemptions from a stipulation entered by the court in litigation regarding survey and manage species and the 2014 Record of Decision related to Survey and Manage Mitigation Measure in *Northwest Ecosystem Alliance v. Rey*, No. 04-844-MJP (W.D. Wash., Oct. 10, 2006). The exemptions are known as the "Pechman Exemptions." The use of the Pechman Exemptions does not require predisturbance surveys for survey and manage species.

Two Pechman Exemptions are applied to specific stand types in the project area.

The two exemptions are:

- a) Thinning projects in stands younger than 80 years old and;
- d) The portions of projects involving hazardous fuel treatments where prescribed fire is applied. Any portion of a hazardous fuel treatment project involving commercial logging will remain subject to the survey and manage requirements except for thinning stands younger than 80 years old under subparagraph a. of this paragraph.

Pechman Exemption (a) will be applied to plantations in the project area. About 1,174 acres of plantations were planted from 1981-1993 (ranging from 23-35 years old) and will be thinned using a variable density prescription. Stands less than 80 years old are exempt from pre-disturbance surveys. No survey and manage species or probable habitat is known from the area (final EA page 391).

Pechman Exemption (d) will be applied to about 808 acres of Late Successional Old Growth (LSOG) in the project area. Understory conifer ladder fuels less than 8 inches diameter at breast height may be cut and hand piled, if necessary, to protect overstory trees and the areas prescribed burned. No ground disturbing activities will take place; no commercial timber harvest or biomass removal is associated with this treatment. Pre-disturbance surveys are not required. No survey and manage species or probable habitat is known from the area (final EA pages 391and 369). The Pechman Exemption (d) will be applied to units 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, and 17.

Reasons for the Decision

My decision to select Alternative 2 was made considering how well the alternative meets the purpose and need for action, how the alternative responds to resource issues, and what the likely environmental effects will be. In selecting Alternative 2, I carefully reviewed the disclosures in Chapter 3 of the final environmental assessment. The analysis discloses predicted environmental consequences of the actions, including effects to the Northern spotted owl and other wildlife species; benefits to forest health; reduction of wildfire risk, especially in the Wildland Urban Interface; compliance with water quality regulations, including compliance with the Aquatic Conservation Strategy; and maintenance of soil productivity. My conclusions are based on a review of the project record, including a thorough review of relevant scientific information.

The following narratives provide more detail on my reason for the decision.

1. Response of Alternative 2 to the Purpose and Need

My decision will move the project area towards the desired future condition. There has been a departure from the Historic Range of Variability (HRV) across the project area. The greatest departure from HRV occurs in ponderosa pine, where large diameter open ponderosa pine stands were once distributed across the landscape in both the ponderosa pine and mixed conifer plant associations; about 90% of the project area was once dominated by ponderosa pine stands. Currently about 75% of the project area is dominated by trees less than 20 inches diameter at breast height (final EA page 15).

Species composition across the project area is also outside of the HRV. The most dramatic changes have occurred in the mixed conifer (dry and wet) plant association groups because of overstory removal of ponderosa pine and fire suppression and exclusion. This has led to an overall increase in advanced grand/white fir persistence and abundance at the expense of ponderosa pine regeneration compared to the reference condition. These conditions can preclude the growth and development of large diameter ponderosa pine over the long term due to competition for site resources. Additionally, densities of grand/white fir regeneration and subsequent development of shade intolerant trees as ladder fuels put the remaining overstory old ponderosa pine at risk to high intensity wildfires. The potential loss of these capstone species reduces the resiliency of the landscape to respond to disturbance over time (final EA page 16).

Moving the area towards HRV will maintain and restore forest resiliency and forest health and help meet the purpose and need for action. By applying silvicultural prescriptions such as thinning from below to maintain large diameter legacy ponderosa pine, group openings to restore pine where it once occurred, and the use of variable density thinning in second growth ponderosa pine and plantations, including the use of prescribed fire, treatments will 1) maintain and improve long-term habitat for interior forest species; 2) reduce fire risk for large stand replacement events; 3) improve the potential for large ponderosa pine tree development; and 4) maintain and enhance stand densities that favor resistance and resiliency to future unknown disturbance (final EA page 14-16).

The project area contains a designated Wildland Urban Interface (WUI) as described in the *Greater Sisters Country Community Wildfire Protection Plan*. The Wildland Urban Interface follows Forest Road 16 south from the city of Sisters to the Three Creek Lake basin, a popular and highly used recreation destination on the Sisters Ranger District. Treatments such as thinning from below to remove ladder fuels and prescribed burning in the Wildland Urban Interface will provide for the safe ingress of fire suppression resources and the safe egress of the public in the event of a wildfire.

Alternative 2 will reduce fire hazard across the project area from a current high of around 44% of the project acres to a low of around 7%. This is important because the project area has some of the last remaining mixed conifer stands in that portion of the Ranger District (final EA page 379).

Additionally, the revised Forest Plan amendments willhelp meet the purpose and need for action, allow for operational flexibility in the Wildland Urban Interface, and assist in achieving the standards and guidelines for the Scenic Views land allocation (see previous Forest Plan Amendment discussion in this DN).

Finally, the project will provide wood products such as sawlogs and biomass as an outcome of improving forest health and resiliency in the project area. A viable forest products industry is essential to maintain the necessary infrastructure to carry out forest restoration activities. Alternative 2 will harvest about 6.6 million board feet (MMBF) (20,371 cubic board feet) of forest products and generate about 64 jobs (final EA pages 453-455).

2. Consideration of Public Comment and Other Resource Issues

In making this decision I thoroughly considered the comments received during the 30-day public comment period on the draft environmental assessment. Appendix I of the final environmental assessment details the consideration and response to public comments. In responding to comments the interdisciplinary team has supplemented and improved some of the analysis, made factual and editorial corrections, and made clarifications. Specific changes made to the final environmental assessment since the comment period includes corrections of typological mistakes and style and a more robust analysis of wildlife cumulative effects. An errata sheet was prepared to document minor changes in text for the final environmental assessment.

Other Alternatives Analyzed

In addition to the selected Alternative 2, two additional alternatives were analyzed in detail. They include Alternative 1, No Action, and Alternative 3.

Alternative 1 (No Action)

Alternative 1 is the No Action alternative. This alternative provides baseline information on the affected resources, including expected trends. There would be an increase overtime in stand densities across the project landscape, putting large old trees at risk to insects and disease, as well as competition for site resources such as nutrients and water. There would also be an increase over time of the fire hazard due to the lack of treatment in the Wildland Urban Interface; this would affect public health and safety as well as a heightened risk to wildland firefighters entering the project area. Currently the project area has a high fire hazard rating (final EA page 37). Detailed discussions of the existing condition for each resource area is contained in the final environmental assessment.

Alternative 3

Alternative 3 was developed in response to Key Issues identified during public scoping: 1) do not construct any temporary roads; 2) do not include group openings in the mixed conifer plant association; and 3) do not remove large diameter ponderosa pine trees with dwarf mistletoe (final EA pages 46-53).

Alternative 3 would treat about 4,405 acres. This action alternative would convert group openings in the mixed conifer plant association to a thinning treatment; convert the dwarf mistletoe treatment to a thinning treatment; and would not construct any temporary roads. About 6.3 MMBF of timber would be harvested. About 60 jobs would be created.

I considered the effects analysis on resources of concern in my consideration of Alternative 3. Analysis contained in the final environmental assessment show very minor differences between the action alternatives (final EA pages 73-77).

Public Involvement

The proposal was listed in the Schedule of Proposed Actions (SOPA) in the spring 2013. A scoping letter was mailed in March 26, 2014. Scoping comments were used to identify Key Issues which lead to the development of Alternative 3.

Comments addressed a wide range of issues including roads and invasive plants, dwarf mistletoe treatments, group opening treatments, carbon storage, Wildland Urban Interface treatments, citizen identified unroaded areas, fire hazard and fire regimes, and construction of temporary roads.

The draft environmental assessment was released for 30-day public comment on January 8, 2016. Comments were received from 5 people representing three organizations and two businesses. Organizations included the American Forest Resource Council, INTERFOR, Oregon Wild, BlueMountains Biodiversity Project, and Quicksilver Contracting. About 90 comments were addressed. A summary of public comment was prepared as part of the project record and is included in the final environmental assessment (see Appendix I in the final EA).

A consideration of science submitted during the 30-day public comment period on the draft environmental assessment is also included in the final environmental assessment (Appendix J, final EA).

I have reviewed these comments and their relevance to the analysis contained in the final environmental assessment in considering my decision.

Deschutes Collaborative Forest Project

The Melvin Butte project area is located within the *Deschutes Collaborative Forest Project Area*, *Deschutes Skyline Landscape*, which was selected in 2010 by the Secretary of Agriculture and an advisory committee as a Collaborative Forest Landscape Project (final EA page 2). The Melvin Butte Vegetation Management Project was initially presented to the collaborative steering committee in March 2014. During the development of the project the interdisciplinary team worked closely with members of the collaborative working group, in office settings and in the field, to find common ground and discuss issues related to forest health and resiliency and other resource concerns. Field trips were held on June 3, 2014, April 24, 2015, and October 30, 2015. Discussions focused on dwarf mistletoe treatments, the size of group openings, mixed conifer treatments, the relationship of stocking levels to potential bark beetle infestation, and the silvicultural treatment of old growth stands with large diameter trees less than 150 years old.

In addition to participating in discussions and field trips, the collaborative working group developed silvicultural treatment recommendations for the ponderosa pine forest type, the dry mixed conifer forest type, and stands infected with dwarf mistletoe. Recommendations were integrated into project planning, including the use of the Van Pelt guide for old-growth retention and limiting the size of group openings in the mixed conifer plant association.

A letter of support for Alternative 2 was received from the collaborative steering committee on July 15, 2016.

Consultation with Government Agencies and Tribes

A scoping letter was provided to the Tribal chairs for the Burns-Paiute, Klamath Tribe, and the Confederated Tribes of the Warm Springs, Oregon on February 24, 2014. The Tribes did not express any concerns regarding the project (final EA page 33).

Legal Requirements and Policy

In reviewing the final environmental assessment and actions associated with Alternative 2, I have concluded that my decision is consistent with the following laws and requirements:

The National Environmental Policy Act (NEPA)

NEPA establishes the format and content requirements of environmental analysis and documentation as well as requirements for public involvement and disclosure. The entire process of preparing this environmental assessment was undertaken to comply with NEPA (final EA page 11).

The National Forest Management Act (NFMA)

I find this decision to be consistent with the long term management objectives as discussed in the Deschutes National Forest Plan, as amended. All other Forest Plan direction, including the Northwest Forest Plan has been adhered to and incorporated into project design. In addition, I find Alternative 2 to be consistent with the requirements of the National Forest Management Act implementing regulations; specifically, under Alternative 2 there is no timber harvest on lands classified as unsuitable for timber production (final EA page 188). Alternative 2 is consistent with the management and vegetation requirements found at 36 CFR 219.217.

The Preservation of American Antiquities Act of June 1960 and the National Historic Preservation Act: the Oregon State Historic Preservation officer (SHPO)

The State Historic Preservation Office (SHPO) was consulted during project planning following guidelines in the Regional Programmatic Agreement among USDA-Forest Service, the Advisory Council on Historic Preservation, and the Oregon SHPO. A cultural resource inventory has been completed for the project area. On August 14, 2014, the Deschutes National Forest completed the "Project Review for Heritage Resources under the Terms of the 2004 Programmatic Agreement" with the Oregon State Historic Preservation Officer (SHPO). A second addendum was submitted on August 13, 2015. The project complies with Stipulation III (B)(2): *Undertaking meets the criteria in the PA (programmatic agreement) for a Historic Properties Avoided determination*(final EA page 421).

The Endangered Species Act of 1973, as amended

A Level 1 review was initiated with the U. S. Fish and Wildlife (USFW) on August 18, 2014 to discuss the project's potential impacts on Northern spotted owl and Northern spotted owl Critical Habitat. A Biological Assessment (BA) was prepared and submitted to the USFW on February 15, 2015 and a Letter of Concurrence was issued by the USFW on March 5, 2015. Alternative 2 is determined to have *no effect* to the federally listed Northern spotted owl and its habitat; Alternative 2 *may affect but not likely to adversely affect*Northern spotted owl designated Critical Habitat. It has been determined that the implementation of all the proposed activities will have either no effect to any threatened or endangered fish or plant species, have no impact on any sensitive wildlife species or associated habitat, or may impact individuals or habitat but not cause a trend for federal listing (final EA pages 74-76).

The Clean Water Act, 1982 and 303(d) Listed Waterbodies

Alternative 2 will comply with the Clean Water Act. Alternative 2 will not affect water temperature or water quality since no vegetative management practices will occur in Riparian Reserves; no water bodies in the project area are listed on the Oregon 303(d) list for water temperature above the State standard(final EA pages 12 and 94-112).

The Clean Air Act

Alternative 2 will comply with the Clean Air Act. The Forest will follow directions of the Oregon State Forester in conducting prescribed burning in order to achieve strict compliance with all aspects of the Clean Air Act and adherence to the Oregon Smoke Management Plan (final EA pages 12-13 and 342-385)

Civil Rights and Environmental Justice

I have determined that there will be no discernible impacts from any of the alternatives on Native Americans, women, other minorities, or the Civil Rights of any American citizen (final EA pages 455-456).

Implementation

I reviewed the final environmental assessment and associated appendices and believe there is adequate information within these documents to provide a reasoned choice of action. I am fully aware of adverse effects that cannot be avoided and believe the risks are outweighed by the benefits. Implementation of Alternative 2 will cause no unacceptable cumulative impact to any resource.

Minor changes may be needed during implementation to better meet on-site resource management and protection objectives. In determining whether and what kind of further NEPA action is required, I will consider the criteria to supplement an existing environmental assessment in 40 CFR 1502.9(c) and FSH 1909.15, sec. 18, and in particular, whether the proposed change is a substantial change to Alternative 2

as planned and already approved, and whether the change is relevant to environmental concerns. Connected or interrelated proposed changes regarding particular areas or specific activities will be considered together in making this determination. The cumulative impacts of these changes will also be considered.

Implementation may begin as soon as the winter of 2016 or the late spring of 2017.

Finding of No Significant Impact

The following intensity factors were used to assess the potential for environmental effects tobe significant. Page numbers are referenced to the August 2016 final environmental assessment.

1. Impacts that may be both beneficial and adverse. My finding of no significant environmental effects is not biased by the beneficial effects of the action. The beneficial and adverse impacts are disclosed in the final environmental assessment and no significant effects on the human environment have been identified. As described in the Melvin Butte Vegetation Management Project final environmental assessment, beneficial and adverse effects and the reasons they are not expected to be significant include:

Water Quality and Fisheries –The effects to water quality and fisheries are negligible. There will be *no effect* to Columbia River bull trout or bull trout critical habitat. There will be *no impact* to Interior Redband Trout (final EA page 129-133). No water bodies in the project area are listed on the Oregon 303(d) list for water temperature above the State standard; no Riparian Reserves will be treated (final EA page 109). The project meets all nine objectives of the Aquatic Conservation Strategy (ACS) (final EA pages 133-139).

Threatened, Endangered, and Sensitive Wildlife Species – The project will have no effect on the Northern spotted owl and may affect but is not likely to adversely affectNorthern spotted owl Critical Habitat (final EA pages 199-217). There will be no effect to the gray wolf (final EA pages 198-199). There will be no effect to the Oregon spotted frog or proposed critical habitat (final EA pages 217-218).

Management Indicator Species (MIS) –Alternative 2 is consistent with the standards and guidelines for Management Indicator Species in the Deschutes National Forest Land and Resource Management Plan, as amended (final EA page 197).

Botanical Species – There are no known populations or potential habitats for sensitive or survey and manage plant species in the project area (final EA pages 389-393). The project utilizes the Pechman Exemptions in specified portions of the project area. There is a moderate risk for the spread of invasive plants. Resource Protection Measures are required (final EA pages 393-398 and Appendix B of this draft Decision Notice).

Recreation—The direct and indirect effects to Forest visitors will occur due to the presence of machinery, creation of noise and dust from logging operations, possible traffic delays, and visual evidence such as marked trees and skid trails. Forest Plan standards and guidelines will be met throughthe Resource Protection Measures(final EA pages 61-63 and Appendix B of this draft Decision Notice).

About 7,395 acres were identified as meeting the criteria for Potential Wilderness Areas (PWA) found in Forest Service Handbook (FSH) Chapter 71.1. The project will remove about 16 acres (located in unit 57) from the PWA analysis. This is about 0.22% of the entire PWA analysis and is not considered a substantial impact on the remaining PWA acres (final EA pages 427-433; Figure 39, page 432).

Cultural Resources – There will be no effects to known cultural resource sites (final EA pages 420-423).

2. *Public health and safety*. The reduction of hazardous fuels in the Wildland Urban Interface will allow the ingress of fire suppression resources and the egress of the pubic in the event of a wildfire. Actions in the Wildland Urban Interface will contribute to public health and safety over the short and long term(final EA pages 379-385).

- 3. Unique characteristics of the area such as park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. There are no park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas in the project area (final EA page 456).
- 4. The degree to which the effects area likely to be highly controversial. The nature of potential effects of the implementation of Alternative 2 is well established and not likely to be highly controversial in a scientific context. The best available science was utilized by the planning team to develop the analysis outlined in the final environmental assessment. While the public may perceive some aspect of the project to be controversial, there is no known scientific controversy over the impacts of the decision.

A consideration of science submitted during the 30-day public comment period on the draft environmental assessment is included in the final environmental assessment (final EA, Appendix J).

- 5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks. The effects on the human environment from Alternative 2 are not uncertain and do not involve unique or unknown risks.
- 6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. The action will not establish a precedent for future actions with significant effects because it conforms to all existing Forest Plan direction. Future undertakings are subject to NEPA procedures.
- 7. Cumulative effects. No significant cumulative effects have been identified (final EA pages 73-77).
- 8. Degree action may affect sites listed in or eligible for listing in the National Register of Historic Places or may cause loss of destruction of significant scientific, cultural, or historical resources. The project will result in a Historic Properties Avoided determination. The cultural resource survey is in compliance with Section 106 of the National Historic Preservation Act and the 2004 Programmatic Agreement between the Forest Service and the Oregon State Historic Preservation Office (SHPO) (final EA pages 420-423).
- 9. Degree action may adversely affect endangered or threatened species or its habitat that has been determined to be critical under the ESA. Alternative 2 will have no effect to the endangered gray wolf or threatened Northern spotted owl or its habitat. Alternative 2 may effect but not likely to adversely effect Northern spotted owl designated Critical Habitat (final EA pages 196).

A Level 1 review was initiated with the U. S. Fish and Wildlife (USFW) on August 18, 2014 to discuss the project's potential impacts on Northern spotted owl and Northern spotted owl critical habitat. A Biological Assessment (BA) was prepared and submitted to the USFW on February 15, 2015 and a Letter of Concurrence was issued by the USFW on March 5, 2015 (final EA pages 9 and 201).

10. This action does not threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. All applicable laws and regulations were considered in the planning of this project (final EA pages 10-14).

Predecisional Administrative Review

This project was subject to Predecisional Administrative Review pursuant to 36 CFR 218, Subpart B. Also called the "objection process" the predecisional administrative review process replaced the appeal process in March 2013. The full text of the rule can be found here: http://federal.eregulations.us/cfr/title/5/28/2013/title36/chapterII/part218.

The Draft DN was distributed according to 36 CFR 218.7 providing a 45-day period for objection to be filed prior to making a final decision. On August 20, 2016 the legal notice was published in *The Bulletin* (Bend, Oregon) announcing the Predecisional Administrative Review (Objection) Period for the Draft Decision Notice and final Environmental Assessment for the Melvin Butte Vegetation Management

Project. An objection was filed by the Blue Mountains Biodiversity Project/League of Wilderness Defenders (BMBD) on October 6, 2016.

Forest staff, including members of the project interdisciplinary team, and Paula Hood, of the Blue Mountains Biodiversity Project, convened a conference call on October 17, 2017 to discuss the objection filed by BMBD on the proposed selection of Alternative 2. Issues raised by BMBD included silvicultural treatments in Northern spotted owl (NSO) dispersal habitat; prescribed burning in NSO habitat; silvicultural treatments in the mixed conifer plant association group; potential effects to American marten, Black-backed woodpecker, and Northern goshawk habitat; group openings in the lodgepole pine plant association group; potential effects to areas identified in the Potential Wilderness Area (PWA) and Citizen Unroaded Areas analysis; and the harvest of trees greater than 21 inches diameter at breast height in the project area. After consultation, Forest staff offered to defer group openings in the lodgepole pine plant association group (areas that were slated for group openings would revert to a thinning prescriptions) and areas in the PWA (unit 57) and Citizen Unroaded Areas (unit 48) would be dropped from treatment.

A counter offer was received from BMBD on October 26, 2017. The counter offer listed 24 units they requested to be dropped from Alternative 2 citing various concerns. A video conference was held on November 1, 2017 with Forest staff in Bend Oregon and Regional Office staff in Portland, Oregon. After a review of the concerns BMBD expressed during the conference call the Forest declined to make any further concessions citing the inability to meet the project purpose and need for action if the unitprescriptions were substantially changed for Alternative 2. On November 4, 2017 the Forest sent a letter to BMBD explaining its rationale for refusing the counter offer along with a detailed discussion explaining how old growth fragments would be retained and how silvicultural prescriptions maintained old-growth trees and structure throughout the project area.

The Forest had a final call with Karen Coulter, BMBD director, on November 23, 2017. BMBD was unable to accept the objection resolution offer and declined to withdraw their objection.

Contact Persons / Further Information

Project records are on file at the Sisters Ranger District office. The final environmental assessment and other project documents are available on the internet at

http://data.ecosystem-management.org/nepaweb/nepa_project_exp.php?project=44107

For additional information concerning the specific activities authorized with my decision, you may contact:

Michael Keown, Environmental Coordinator Sisters Ranger District POB 249 Sisters, OR 97759 (541) 549-7735 Kristie L. Miller, District Ranger Sisters Ranger District POB 249 Sisters, OR 97759 (541) 549-7700

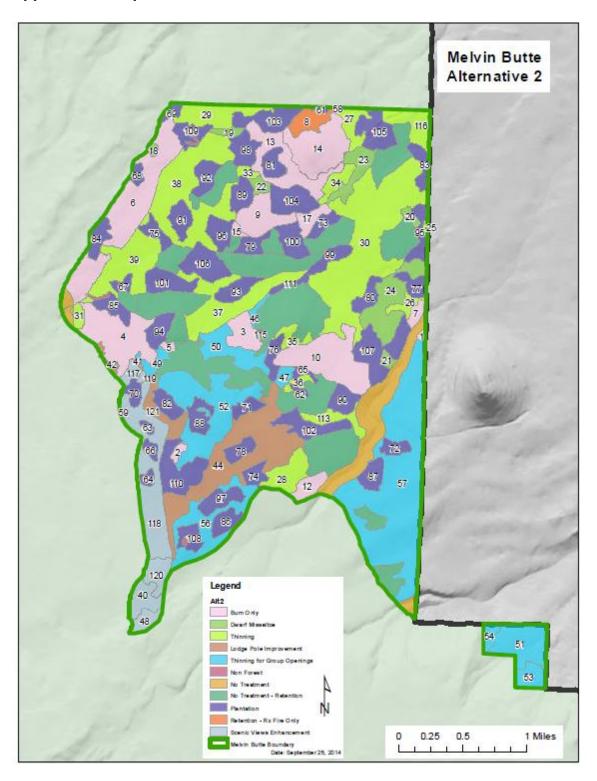
Responsible Official

The Forest Supervisor of the Deschutes National Forest is the official responsible for deciding the type and extent of management activities in the Melvin Butte Vegetation Management Project area.

/s/ John Allen
John P. Allen
Forest Supervisor
Deschutes National Forest

12/21/2016 Date

Appendix A: Map of Alternative 2



Appendix B: Unit Prescriptions

Unit	Treatment	Secondary	NWFP	Mgmt. Area	Acres
1	Prescribed Fire	None	Matrix	M18	3.0
2	Prescribed Fire	None	Matrix	M9	6.9
3	Prescribed Fire	None	Matrix	M18	34.9
4	Prescribed Fire	None	Matrix	M18	13.4
	Prescribed Fire	None	Matrix	M9	146.2
5	Prescribed Fire	None	Matrix	M9	1.2
	Prescribed Fire	None	Matrix	M18	3.0
6	Prescribed Fire	None	Matrix	M18	3.8
	Prescribed Fire	None	Matrix	M9	132.3
7	Prescribed Fire	None	Matrix	M18	12.0
8	Retention (RX FIRE)	None	Administratively Withdrawn	M15	29.8
9	Prescribed Fire	None	Matrix	M18	54.6
10	Prescribed Fire	None	Matrix	M18	126.5
12	Prescribed Fire	None	Matrix	M18	22.3
	Prescribed Fire	None	Matrix	M18	56.5
13	Prescribed Fire	None	Administratively Withdrawn	M15	25.0
14	Prescribed Fire	None	Administratively Withdrawn	Administratively M15	
15	Prescribed Fire	None	Matrix	M18	5.7
17	Prescribed Fire	None	Matrix	M18	19.5
18	Dwarf Mistletoe	MMPB	Matrix	M18	0.2
	Dwarf Mistletoe	MMPB	Matrix	M9	4.3
19	Dwarf Mistletoe	MMPB	Matrix	M9	0.8
	Dwarf Mistletoe	ММРВ	Matrix	M18	7.9
20	Dwarf Mistletoe	MMPB	Matrix	M18	7.1
21	Dwarf Mistletoe	ММРВ	Matrix	M18	7.6
22	Dwarf Mistletoe	ММРВ	Matrix	M18	9.9
23	Dwarf Mistletoe	ММРВ	Matrix	M18	35.8
24	Dwarf Mistletoe	ММРВ	Matrix	M18	85.4
25	Thinning	ММРВ	Matrix	M18	2.7
26	Thinning	ММРВ	Matrix	M18	14.0
27	Thinning	ММРВ	Matrix	M18	21.0
28	Thinning	ММРВ	Matrix	M18	44.4
29	Thinning	ММРВ	Matrix	M9	31.0
	Thinning	ММРВ	Matrix	M18	26.5
30	Thinning	ММРВ	Matrix	M18	326.3
31	Thinning	ММРВ	Matrix	M18	6.2
	Thinning	ММРВ	Matrix	M9	3.8

Unit	Treatment	Secondary	NWFP	Mgmt. Area	Acres
33	Thinning	ММРВ	Matrix	M18	8.4
34	Thinning	MMPB	Matrix	M18	20.4
35	Thinning	MMPB	Matrix	M18	15.8
36	Thinning	MMPB	Matrix	M18	9.1
37	Thinning	MMPB	Matrix	M18	112.4
38	Thinning	MMPB	Matrix	M9	108.6
	Thinning	MMPB	Matrix	M18	75.3
39	Thinning	MMPB	Matrix	M9	89.8
	Thinning	MMPB	Matrix	M18	13.6
40	Scenic Views Enhancement	MMPB	Matrix	M9	33.4
41	Lodgepole Pine Improvement	ММРВ	Matrix	M9	1.8
42	Lodgepole Pine Improvement	ММРВ	Matrix	M9	6.4
	Lodgepole Pine Improvement	ММРВ	Matrix	M18	2.1
44	Lodgepole Pine Improvement	ММРВ	Matrix	M9	39.7
	Lodgepole Pine Improvement	ММРВ	Matrix	M18	168.8
46	Thinning with Group Openings	ММРВ	Matrix	M18	7.6
47	Thinning with Group Openings	ММРВ	Matrix	M18	9.8
48	Scenic Views Enhancement	MMPB	Matrix	M9	19.0
49	Thinning with Group Openings	ММРВ	Matrix	M9	15.6
50	Thinning with Group Openings	ММРВ	Matrix	M18	57.6
51	Thinning with Group Openings	ММРВ	Matrix	M18	74.4
52	Thinning with Group Openings	ММРВ	Matrix	M9	48.4
	Thinning with Group Openings	ММРВ	Matrix	M18	107.5
53	Thinning with Group Openings	ММРВ	Matrix	M18	26.9
54	Thinning with Group Openings	ММРВ	Matrix	M18	13.2
56	Thinning with Group Openings	ММРВ	Matrix	M9	36.8
	Thinning with Group Openings	ММРВ	Matrix	M18	49.5

Unit	Treatment	Secondary	NWFP	Mgmt. Area	Acres
57	Thinning with Group Openings	ММРВ	Matrix	M18	392.3
58	Plantation	ММРВ	Matrix	M18	0.3
59	Plantation	ММРВ	Matrix	M18	1.9
62	Plantation	ММРВ	Matrix	M18	4.3
63	Plantation	ММРВ	Matrix	M9	5.5
64	Plantation	ММРВ	Matrix	M9	7.0
65	Plantation	ММРВ	Matrix	M18	7.0
66	Plantation	ММРВ	Matrix	M9	8.5
67	Plantation	ММРВ	Matrix	M9	9.3
68	Plantation	ММРВ	Matrix	M18	0.8
	Plantation	ММРВ	Matrix	M9	8.6
69	Plantation	ММРВ	Matrix	M18	0.2
	Plantation	ММРВ	Matrix	M9	9.8
70	Plantation	ММРВ	Matrix	M9	13.9
	Plantation	ММРВ	Matrix	M18	0.2
71	Plantation	ММРВ	Matrix	M18	15.0
72	Plantation	ММРВ	Matrix	M18	15.1
73	Plantation	ММРВ	Matrix	M18	16.1
74	Plantation	ММРВ	Matrix	M18	16.7
75	Plantation	ММРВ	Matrix	M9	17.4
	Plantation	ММРВ	Matrix	M18	0.3
76	Plantation	ММРВ	Matrix	M18	18.5
77	Plantation	ММРВ	Matrix	M18	18.8
78	Plantation	ММРВ	Matrix	M18	18.8
79	Plantation	ММРВ	Matrix	M18	19.3
80	Plantation	ММРВ	Matrix	M18	20.9
81	Plantation	ММРВ	Matrix	M18	20.6
82	Plantation	ММРВ	Matrix	M9	21.2
83	Plantation	ММРВ	Matrix	M18	21.5
84	Plantation	ММРВ	Matrix	M9	22.6
85	Plantation	ММРВ	Matrix	M9	21.8
86	Plantation	ММРВ	Matrix	M18	22.7
87	Plantation	ММРВ	Matrix	M18	22.9
88	Plantation	ММРВ	Matrix	M9	5.1
	Plantation	ММРВ	Matrix	M18	19.0
89	Plantation	ММРВ	Matrix	M18	24.6
90	Plantation	ММРВ	Matrix	M18	24.8
91	Plantation	ММРВ	Matrix	M9	19.9

Unit	Treatment	Secondary	NWFP	Mgmt. Area	Acres
	Plantation	ММРВ	Matrix	M18	4.9
92	Plantation	ММРВ	Matrix	M9	9.0
	Plantation	ММРВ	Matrix	M18	15.8
93	Plantation	ММРВ	Matrix	M18	25.4
94	Plantation	ММРВ	Matrix	M9	8.5
	Plantation	ММРВ	Matrix	M18	17.2
95	Plantation	ММРВ	Matrix	M18	26.3
96	Plantation	ММРВ	Matrix	M18	26.3
97	Plantation	ММРВ	Matrix	M9	1.6
	Plantation	ММРВ	Matrix	M18	25.8
98	Plantation	ММРВ	Matrix	M18	29.8
99	Plantation	ММРВ	Matrix	M18	21.6
100	Plantation	ММРВ	Matrix	M18	31.0
101	Plantation	ММРВ	Matrix	M18	36.0
102	Plantation	ММРВ	Matrix	M18	41.7
103	Plantation	ММРВ	Matrix	M18	40.1
104	Plantation	ММРВ	Matrix	M18	43.4
105	Plantation	ММРВ	Matrix	M18	44.4
106	Plantation	ММРВ	Matrix	M18	46.8
107	Plantation	ММРВ	Matrix	M18	65.8
108	Plantation	ММРВ	Matrix	M9	19.3
	Plantation	ММРВ	Matrix	M18	0.3
109	Plantation	ММРВ	Matrix	M9	22.2
110	Plantation	ММРВ	Matrix	M9	56.6
	Plantation	ММРВ	Matrix	M18	2.4
111	Plantation	ММРВ	Matrix	M18	8.7
113	Thinning	ММРВ	Matrix	M18	26.7
115	Plantation	ММРВ	Matrix	M18	2.2
116	Thinning	ММРВ	Matrix	M18	42.4
117	Scenic Views Enhancement	ММРВ	Matrix	M9	11.9
	Scenic Views Enhancement	ММРВ	Matrix	M18	0.1
118	Scenic Views Enhancement	ММРВ	Matrix	M8	1.1
	Scenic Views Enhancement	ММРВ	Matrix	M9	129.9
	Scenic Views Enhancement	ММРВ	Matrix	M18	13.0
119	Scenic Views Enhancement	ММРВ	Matrix	M9	3.6
120	Scenic Views Enhancement	ММРВ	Matrix	M9	28.7
121	Lodgepole Pine Improvement	ММРВ	Matrix	M9	30.6
				Total	4469

Note: MMPM = Mowing and/or mastication and prescribed burn.

Appendix C: Resource Protection Measures

The following Resource Protection Measures will be applied to Alternative 2. Some measures are applied to the entire sale area; others are unit specific. Resource Protection Measures are project design criteria and best management practices that would reduce or eliminate unwanted effects and ensure project activities are implemented to comply with all necessary Forest Plan standards and guidelines.

Soils

Ground-based Skidding and Yarding Operations

- Use ground-based yarding systems only when physical site characteristics are suitable to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources (BMP Veg-4).
 - Avoid equipment operations on slopes greater than 30 percent (LRMP SL-2) (*Entire Sale*).
 - Assess sensitive soils to determine if equipment operations can occur without causing excessive soil disturbance (LRMP SL-3) (*Entire Sale*).
- Use suitable measures during felling and skidding operations to avoid or minimize disturbance to soils and water bodies to the extent practicable (BMP Veg-4).
 - Use directional felling techniques from pre-approved skid trails, and suspend the leading end of logs during skidding operations (*Entire Sale*).
 - On steep pitches within a harvest unit (slopes of 30 percent or steeper) and less than 100 feet long, directional felling of trees to skid trails and/or line pulling should be utilized to harvest trees. This method applies to harvest units with small areas of steeper slopes (e.g. less than 5 percent of the unit area) (*Entire Sale*).
 - O Stop harvest operations when soils become too wet to operate on without causing excessive soil disturbance (*Entire Sale*).
- Use existing roads and skid trail networks to the extent practicable (BMP Veg-4).
 - Use old landings and skidding networks whenever possible. Assure that water control structures are installed and maintained on skid trials that have gradients of 10 percent or more. Ensure erosion control structures are stabilized and working effectively (LRMP SL-1) (*Entire Sale*).
- Design and locate skid trails and skidding operations to minimize soil disturbance to the extent practicable (BMP Veg-4).
 - o In all proposed activity areas, locations of new yarding and transportation systems will be designated prior to the logging operations. This includes temporary roads, spur roads, log landings, and primary (main) skid trail networks (LRMP SL-1 & SL-3) (*Entire Sale*).
 - o Designate locations for new trails and landings so that they properly fit the terrain and minimize the extent of soil disturbance (LRMP SL-3) (*Entire Sale*).
 - Restrict skidders and tractors to designated areas (i.e., roads, landings, designated skid trails), and limit the amount of traffic from other specialized equipment off designated areas. Harvester shears will be authorized to operate off designated skid trails at 30 foot intervals and make no more than two equipment passes on any site specific area to accumulate materials (*Entire Sale*).
- When using conventional harvest equipment that include harvester shears and rubber tired or tracked skidders, maintain spacing of 100 to 150 feet for all primary skid trail routes, except where converging at landings. Closer spacing due to complex terrain must be approved in advance by the Timber Sale Administrator and Soil Scientist. (Entire Sale Area)
 - o Main skid trails have typically been spaced 100 feet apart (11% of the unit area). For larger activity areas (greater than 40 acres) that can accommodate wider spacing

- distances, it is recommended that distance between main skid trails be increased to 150 feet to reduce the amount of detrimentally disturbed soil to 7% of the unit area (Froehlich 1981) (*Entire Sale*).
- When using harvester forwarder equipment space trails a minimum of 60 feet apart.
 Make use of ghost trails as much as possible on which the harvester makes only one pass and positions harvested materials so they can be reached from alternate harvester forwarder trails (*Entire Sale*).
- Use suitable measures to stabilize and restore skid trails after use (BMP Veg-4).
 - Evaluate soil conditions and identify soil restoration opportunities (subsoiling) on skid trails post-harvest (*Entire Sale*).

Landings

- Minimize the size and number of landings as practicable to accommodate safe, economical, and efficient operations (BMP Veg-6) (— *Entire Sale*).
- Avoid locating landings near any type of likely flow or sediment transport conduit during storms, such as ephemeral channels and swales, where practicable (BMP Veg-6) (*Entire Sale*).
- Locate landings to minimize the number of required skid roads (BMP Veg-6) (Entire Sale).
- Re-use existing landings where their location is compatible with management objectives and water quality protection (BMP Veg-6) (*Entire Sale*).

Winter Logging

- Conduct winter logging operations when the ground is frozen or snow cover and depth is adequate to avoid or minimize unacceptable rutting or displacement of soil (BMP Veg-7) (*Entire Sale*).
- Suspend winter operations if ground and snow conditions change such that unacceptable soil disturbance, compaction, displacement, or erosion becomes likely (BMP Veg-7) (*Entire Sale*).

Use of Prescribed Fire

- Conduct prescribed fires to minimize the residence time on the soil while meeting the burn objectives.
 - Manage fire intensity to maintain target levels of soil temperature, duff, and residual vegetation cover within the limits and at locations described in the prescribed fire plan (BMP Fire-2) (Entire Sale).
- Consider alternatives to ground-disturbing fireline construction such as using existing roads or other already existing suitable features for firelines.
 - If fireline construction is necessary, construct line to the minimum size and standard necessary to contain the prescribed fire and meet overall project objectives (BMP Fire-2) (Entire Sale).

Hydrology and Fisheries Vegetation Management Planning

- Through the project planning and design process, the following areas are excluded from treatment to protect water quality and riparian resources:
 - No treatments are proposed in Riparian Reserves except for 0.1 miles of road closure and decommissioning (*Entire Sale Area*)
 - No new roads or new temporary roads will be constructed in Riparian Reserves (Entire Sale Area)

Ground-Based Skidding and Yarding Operations

- Modify mechanical vegetation treatment prescriptions and operations as needed to maintain ecosystem structure, function, and processes.
 - O Mechanical treatment and equipment is not allowed within 30 ft. on either side of the ephemeral channels, unless approved by a hydrologist or fisheries biologist. (*Units 10*, 17, 23, 30, 37, 44, 76, 79, 80, 95, 99, 100, 105, 116)
 - o Removal of trees within 30 ft. on either side of ephemeral channels is not allowed unless approved by a hydrologist or fisheries biologist. (*Moderately effective Entire Sale Area and Units 10, 17, 23, 30, 37, 44, 76, 79, 80, 95, 99, 100, 105, 116*)
 - O Do not pile slash in swales, washes, or depressions (*Units 10, 17, 23, 30, 37, 44, 76, 79, 80, 95, 99, 100, 105, and 116*).
 - O Ditches and channelized streams that are functioning as a stream should be buffered based on the class of stream for which they are functioning (i.e. Class 4 buffer if the ditch is intermittent, etc.).(*Entire Sale Area*)
 - O Ditches that do not connect back to a stream (i.e. they feed out into a pasture or irrigation device) should be buffered 30 foot to protect the integrity of the channel. No mechanized equipment is allowed within the buffer. Hand-thinning or reaching in with equipment is permitted but cutting of trees within the channel or on the banks is not permitted. Do not fell or yard any trees across the channel in order to protect channel integrity. (*Entire Sale Area*)
- Locate transportation facilities for mechanical vegetation treatments, including roads, landings, and skid trails outside Riparian Reserves and ephemeral draws to the extent practicable.
 - o Crossing of designated ephemeral draws will be limited and approved by a hydrologist or fisheries biologist. (*Entire Sale Area*)
 - Landings will be located at least 30ft from ephemeral draws and outside of Riparian Reserves. (Entire Sale Area)
- Implement Best Management logging practices that will reduce erosion and potential water quality effects.
 - o Installation of waterbars on skid trails where needed. (*Entire Sale Area*)
 - o Construction of new landings and skid trails would be minimized. (Entire Sale Area)
 - o No ground-based harvest on slopes over 30%. (Entire Sale Area)
 - See soils BMP document for additional specific measures to minimize effect of groundbased skidding and yarding operations.

Hauling Operations

- No haul on hydrologically connected roads or roads within riparian reserves when conditions are wet and can cause sedimentation to reach Three Creek. (*Entire Sale Area*)
- No haul across stream fords when streams are flowing. (*Entire Sale Area*)
- Improve drainage on unstable hydrologically connected roads before haul can occur and implement regular preventative maintenance. (*Entire Sale Area*)
- Consult with a hydrologist or soil scientist to determine if roads are too wet for haul.
- Roads that may need maintenance or that should be monitored for excessive wetness in hydrologically connected areas are (other roads may be identified in the field):
 - o 1620-377 adjacent to ephemeral draw, decommission after use;
 - o 1620-570 adjacent to ephemeral draw, close after use;
 - o 1620-880 adjacent to ephemeral draw;
 - o 1624-360 adjacent to ephemeral draw, decommissioning after use.
- Obliterate all temporary roads. (*Units 4, 51, 56*)

Wildlife

• Disruptive work activities will not take place within ½ mile of any newly discovered nest sites for the species listed below. Haul restrictions will be assessed on a case-by-case basis. This condition may be waved in a particular year if nesting or reproductive success surveys reveal that the species indicated in non-nesting or that young are present that year. Waivers are valid only until the start date of the restriction of the following year (Table 1). (*Entire Sale Area*)

Table 1: Buffer restrictions for nesting raptors

Species	Restriction Period	Buffer Distance Around Nest
Northern spotted owl	March 1 – September 30	¼ mile
Northern goshawk	March 1 – August 31	¹⁄₄ mile
Cooper's hawk	April 15 – August 31	½ mile
Sharp-shinned hawk	April 15 – August 31	⅓ mile
Red-tailed hawk	March 1 – August 31	¹⁄₄ mile
Great gray owl	March 1 – June 30	¹⁄₄ mile
Osprey	April 1 – August 31	¼ mile

• To avoid potential nest destruction and loss of broods, schedule harvest and post-harvest activities outside of nesting season in appropriate habitats (Table 2).(*Entire Sale Area*)

Table 2: Species nesting season

Species	Dates
Lewis woodpecker	March 15-June 30
White-headed woodpecker	March 15-June 30
Pygmy huthatch	March 15-June 30
Olive-sided flycatcher	March 15-June 30
Pileated woodpecker	March 15-June 30
Northern flicker	March 15-June 30
Blue grouse	March 15-June 30

Goshawk

 Disruptive work activities will not take place within ¼ mile of newly discovered nest sites from March 1 through August 31. A 30-acre active nest core and a 400-acre post fledging area were identified in the project area; no density management or prescribed burning will take place in these areas.

Cooper and Sharp shinned hawk

• Restrict disturbance activities within ¼ mile of any newly discovered nests from April 15 through August 31. Haul restrictions will be assessed on a case by case basis. This condition may be waived in a particular year if nesting or reproductive success surveys reveal that the species indicated is non-nesting or that no young are present that year. Waivers are valid only until the start date of the restriction of the following year.

Red-tailed hawk

• Disruptive work activities will not take place within ¼ mile of any newly discovered nest sites from March 1 through August 31. Haul restrictions will be assessed on a case by case basis. This

condition may be waived in a particular year if nesting or reproductive success surveys reveal that the species indicated is non-nesting or that no young are present that year. Waivers are valid only until the start date of the restriction of the following year.

Snags and Down Wood

- EA Unit 57, when down logs densities need to be reduced to provide access for thinning, maintain down log densities at 120 lineal feet per acre with a minimum of 16 inches diameter and 16 feet long (NWFP C-40).
- Where incidental removal of snags occurs to meet objectives for fuel loading within lodgepole pine improvement units and scenic views management areas all snags >21 inches dbh will be retained.

Botany

- Discuss invasive plant prevention practices at force account crew or contractor pre-work session. (*Entire Sale Area*)
- Minimize ground disturbance to the extent practicable. (*Entire Sale Area*)
- Make sure equipment is clean (weed free). (*Entire Sale Area*)
- Insure any materials brought to the site are weed free (gravel, rocks, or soil). (Entire Sale Area)
- Minimize disturbance of existing vegetation. If needed, revegetate with local native plant species. (*Entire Sale Area*)
- Protect any unmapped Whitebark pine discovered during thinning. (*Entire Sale Area*)

Heritage

• Ground disturbing activities within all eligible or potentially eligible sites will be avoided with a 30 meter buffer placed around the sites. If any cultural resources are discovered during project implementation, all project related activities in that area will cease immediately. Workers must immediately notify the onsite supervisor who will contact a Forest Archaeologist. One of the Forest archaeologists will initiate the consultation process as outlined in Section 800.13 of the Advisory Council on Historic Preservation's regulations 36 CFR Part 800.(Entire Sale Area)

Recreation

- Whenever possible, landings, slash piles, and other discordant visual evidence of harvest and treatment activities should not be visible from Sno-parks facilities following completion of operations. (*Units 109 and 39*)
- Do not approve long-term storage of bundles or decks where they will affect the function or use of the Sno-parks. (*Units 109 and 39*)
- Avoid creating sharply diverse vegetation conditions immediately adjacent to Sno-parks. Emphasize a "natural" look of the forest as viewed from the Sno-parks. Sno-parks (109 and 39)
- Do not approve slash piles or storage of decks along trails that may create a hazardous situation for snowmobile users. For example, a slash pile covered by snow may appear to be a small hill/obstacle to a snowmobile user, not an unstable slash pile. Mitigate these hazards asnecessary. (*Units:* 4, 10, 12, 28, 31, 35, 39, 40, 41, 42, 44, 48, 49, 50, 56, 57, 72, 76, 85, 86, 87, 90, 108, 110, 113, and 114)
- During tree-marking, or tree or brush removal activities within 300 feet of Sno-parks, coordinate with recreation staff to emphasize retention and improvement of natural site-defining features. Site boundaries for designated Sno-parks are defined by trees, brush, rocks, or down logs. This helps define the edge of where parking is allowed. Maintaining this vegetation entirely or

- partially or replacing these site-controlling features is critical to future effective site management. (*Units 109 and 39*)
- Retain trees that hold signs (including diamonds that mark winter trails). Replace trail signs that may be damaged or removed during project operations. (*Units: 4, 10, 12, 28, 31, 35, 39, 40, 41, 42, 44, 48, 49, 50, 56, 57, 72, 76, 85, 86, 87, 90, 108, 110, 113, and 114*)
- Whenever possible, in accordance with this EA, remove hazard trees within a tree length near Sno-parks. (*Units 109 and 39*)
- Painted trees should not be visible from Sno-parks within a reasonable time period following completion of project activities. Techniques to accomplish could include, but are not limited to, favoring blue paint marking techniques where possible to mark 'take' trees rather than 'leave' trees for units containing or adjacent to Sno-parks, or removing leave tree paint within sight of Sno-parks. (Units 109 and 39)
- Avoid creating vegetative conditions that would facilitate creation of unauthorized trails, or that would facilitate unauthorized motorized access from FSR 16 or Sno-parks. (*Units 109 and 39*)
- Place boulders (preferred) or other natural features bounding Sno-parks to deter cross-country travel. (*Forest Road 16*)
- Obliterate unauthorized travel ways adjacent to the Sno-parks. (Units 109 and 39)
- Ensure that temporary roads used for project administration do not become future unauthorized trails by effective obliteration after use. (*Entire Sale Area*)
- Assure snow berms created by snowplowing activities do not coincide with winter recreationist routes that create a hazard for snowmobile groomers or recreational users. Coordinate trail closures with the recreation staff. (*Forest Road 16 and Units: 4, 10, 12, 28, 31, 35, 39, 40, 41, 42, 44, 48, 49, 50, 56, 57, 72, 76, 85, 86, 87, 90, 108, 110, 113, and 114*)
- Provide information about timing and location of treatments on websites and at the Sno-parks, including information on specific trail or area closures. (*Units 109 and 39*)
- Coordinate with the special use administrator to identify recreation events permitted for the season. Coordinate conflicts with timing and location. (Forest Road 16 and Units 109 and 39)
- Do not use Upper Three Creek Sno-Park as a staging area as it receives heavy use and serves as a temporary office location for Three Creeks Backcountry outfitter/guides under special use permit by the Forest Service. (*Units 109 and 39*)
- Implement traffic control and safety measures on FSR16 during summer recreation use as necessary. Do not close FSR 16 access to recreational sites. (Forest Road 16)

Transportation

Travel Management Planning and Analysis Operations

- Use existing roads when practicable(*Entire Sale Area*)
- Use system roads where access is needed for long-term management of an area or where control is needed in the location, design, or construction of the road to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources. (Entire Sale Area)
- Consider placing roads in storage (Maintenance Level 1) when the time between intermittent uses exceeds 1 year and the costs of annual maintenance (both economic and potential disturbance) or potential failures due to lack of maintenance exceed the benefits of keeping theroad open in the interim (See BMP Road-6 [Road Storage and Decommissioning]). (Entire Sale Area limited to current Level 1 roads)

Road Operations and Maintenance

Operations

• Designate season of use to avoid or restrict road use during periods when use would likely damage the roadway surface or road drainage features. (*Entire Sale Area*)

- Use suitable measures to communicate and enforce road use restrictions. (Entire Sale Area)
- Adjust maintenance to handle the traffic while minimizing excessive erosion and damage to the road surface. (*Entire Sale Area*)
 - o Ensure that drainage features are fully functional on completion of seasonal operations.
 - o Shape road surfaces to drain as designed.
 - o Construct or reconstruct drainage control structures as needed.
 - o Ensure that ditches and culverts are clean and functioning.
 - Remove berms unless specifically designed for erosion control purposes.
 (Entire Sale Area)
- Use suitable road surface stabilization practices and dust abatement supplements on roads with high or heavy traffic use (See FSH 7709.56 and FSH 7709.59) (*Collector Roads*)

Inspections

- Periodically inspect system travel routes to evaluate condition and assist in setting maintenance and improvement priorities. (*Entire Sale Area*)
- Inspect roads frequently during all operations.
 - Restrict use if road damage such as unacceptable surface displacement or rutting is occurring. (Entire Sale Area)

Maintenance Activities

- Maintain the road surface drainage system to intercept, collect, and remove water from the road surface and surrounding slopes in a manner that reduces concentrated flow in ditches, culverts, and over fill slopes and road surfaces. (*Entire Sale Area where required*)
- Clean ditches and catch basins only as needed to keep them functioning. (*Entire Sale Area where required*)
- Do not undercut the toe of the cut slope when cleaning ditches or catch basins. (*Entire Sale Area where required*)
- Use suitable measures to avoid, to the extent practicable, or minimize direct discharges from road drainage structures to nearby water bodies. (*Entire Sale Area where required*)
- Identify diversion potential on roads and prioritize for treatment.
 - Minimize diversion potential through installation and maintenance of dips, drains, or other suitable measures. (Entire Sale Area where required)
- Maintain road surface treatments to stabilize the roadbed, reduce dust, and control erosion consistent with anticipated traffic and use. (*Entire Sale Area*)
- Grade road surfaces only as necessary to meet the smoothness requirements of the assigned operational maintenance level and to provide adequate surface drainage. (Entire Sale Area)
- Do not undercut the toe of the cut slope when grading roads. (Entire Sale Area where required)
- Do not permit side casting of maintenance-generated debris within the AMZ to avoid or minimize excavated materials entering water bodies or riparian areas. (*Entire Sale Area where required*)
- Avoid over widening of roads due to repeated grading over time, especially where side cast material would encroach on water bodies. (*Entire Sale Area where required*)
- Use potential side cast or other waste materials on the road surface where practicable. (*Entire Sale Area*)
- Dispose of unusable waste materials in designated disposal sites. (*Entire Sale Area where required*)
- Remove vegetation from swales, ditches, and shoulders, and cut and fill slopes only when it impedes adequate drainage, vehicle passage, or obstructs necessary sight distance to avoid or minimize unnecessary or excessive vegetation disturbance. (Entire Sale Area)
- Maintain permanent stream crossings and associated fills and approaches to reduce the likelihood that water would be diverted onto the road or erode the fill if the structure becomes obstructed. (Entire Sale Area)

- Use applicable practices of BMP Road-6 (Road Storage and Decommissioning) for maintenance and management of Maintenance Level 1 roads. (Entire Sale Area where required)
- Ensure the necessary specifications concerning prevail maintenance, maintenance during haul, and post haul maintenance (putting the road back in storage) are in place when maintenance level 1 roads are opened for use on commercial resource management projects or other permitted activities. (*Entire Sale Area*)
- Require the commercial operator or responsible party to leave roads in a satisfactory condition when project is completed. (*Entire Sale Area*)

Temporary Roads

- Schedule construction activities to avoid direct soil and water-disturbance during periods of the year when heavy precipitation and runoff are likely to occur. (Where Applicable)
- Routinely inspect temporary roads to verify that erosion and storm water controls are implemented, functioning, and appropriately maintained. (Where Applicable)
- Maintain erosion and storm water controls as necessary to ensure proper and effective functioning. (Where Applicable)
- Use suitable measures in compliance with local direction to prevent and control invasive species. (*Entire Sale Area*)
- Use temporary crossings suitable for the expected uses and timing of use (See BMP Road-7 [Stream Crossings]). (Entire Sale Area where required)
- Use applicable practices of BMP Road-6 (Road Storage and Decommissioning) to obliterate the temporary road and return the area to resource production after the access is no longer needed. (Entire Sale Area where required)

Road-6 Road Storage and Decommissioning

- Remove the road from the Motor Vehicle Use Map (MVUM) to include the change in the annual forest wide order associated with the MVUM. (Only roads designated for decommissioning)
- Establish effective ground cover on disturbed sites to avoid or minimize accelerated erosion and soil loss. (*Where Applicable*)

Road Storage

- Evaluate all stream and water body crossings for potential for failure or diversion of flow if left without treatment. (Where Applicable)
- Use suitable measures to reduce the risk of flow diversion onto the road surface. (Where Applicable)
- Consider leaving existing crossings in low-risk situations where the culvert is not undersized, does not present an undesired passage barrier to aquatic organisms, and is relatively stable. (Where Applicable)
- Remove culverts, fill material, and other structures that present an unacceptable risk of failure or diversion. (Where Applicable)
- Reshape the channel and stream banks at the crossing-site to pass expected flows without scouring or ponding, minimize potential for undercutting or slumping of stream banks, andmaintain continuation of channel dimensions and longitudinal profile through the crossing site. (Where Applicable)
- Use suitable measures to avoid or minimize scour and down cutting. (Where Applicable)
- Use suitable measures to ensure that the road surface drainage system will intercept, collect, and remove water from the road surface and surrounding slopes in a manner that reduces concentrated flow in ditches, culverts, and over fill slopes and road surfaces without frequent maintenance. (Where Applicable)
- Use suitable measures to stabilize unstable road segments, seeps, slumps, or cut or fill slopes where evidence of potential failure exists. (Where Applicable)

• Close road by means of using natural resource materials such as down logs, boulders, and brush for the first 300' or line of site to its adjacent intersection, whichever is shortest. (*Where Applicable*)

Road Decommissioning

- Use existing roads identified for decommissioning as skid roads in timber sales or land stewardship projects before closing the road, where practicable, as the opportunity arises. (Where Applicable)
- Evaluate risks to soil, water quality, and riparian resources and use the most practicable, cost effective treatments to achieve long-term desired conditions and water quality management goals and objectives. (Where Applicable)
- Implement suitable measures to re-establish stable slope contours and surface and subsurface hydrologic pathways where necessary to the extent practicable to avoid or minimize adverse effects to soil, water quality, and riparian resources. (Requires Evaluation)
- Remove drainage structures. (Where Applicable)
- Recontour and stabilize cut slopes and fill material. (Requires Evaluation)
- Reshape the channel and stream banks at crossing sites to pass expected flows without scouring or ponding, minimize potential for undercutting or slumping of stream banks, and maintain continuation of channel dimensions and longitudinal profile through the crossing site. (*Requires Evaluation*)
- Restore or replace streambed materials to a particle size distribution suitable for the site. (*Requires Evaluation*)
- Restore floodplain function. (Requires Evaluation)
- Implement suitable measures to promote infiltration of runoff and intercepted flow and desired vegetation growth on the road prism and other compacted areas. (Where Applicable)
- Use suitable measures in compliance with local direction to prevent and control invasive species. (*Where Applicable*)
- Uncompact road bed soils using mechanical means to encourage natural vegetative growth and increase water infiltration. (Where Applicable)

Stream Crossings

All Crossings

- Plan and locate surface water crossings to limit the number and extent to those that are necessary to provide the level of access needed to meet resource management objectives as described in the RMOs. (Where Applicable)
- Use crossing structures suitable for the site conditions, the RMOs and design and locate crossings to minimize disturbance to the waterbody. (Where Applicable)
- Use suitable measures to locate, construct, and decommission or stabilize bypass roads to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources. (Where Applicable)
- Use suitable surface drainage and roadway stabilization measures to disconnect the road from the waterbody to avoid or minimize water and sediment from being channeled into surface waters and to dissipate concentrated flows. (Where Applicable)
- Use suitable measures to avoid, minimize, or mitigate damage to the waterbody and banks when transporting materials across the waterbody. (Where Applicable)

Culverts

 Align the culvert with the natural stream channel and cover culvert with sufficient fill to avoid or minimize damage by traffic; construct at or near natural elevation of the streambed to avoid or minimize potential flooding upstream of the crossing and erosion below the outlet and install

- culverts long enough to extend beyond the toe of the fill slopes to minimize erosion. (Where Applicable)
- Use suitable measures to avoid or minimize water from seeping around the culvert and to avoid or minimize culvert plugging from transported bedload and debris. (Where Applicable)
- Regularly inspect culverts and clean as necessary. (Where Applicable)

Low-Water Crossings

- Consider low-water crossings on roads with low traffic volume and slow speeds, and where water depth is safe for vehicle travel; consider low-water crossings to cross ephemeral streams, streams with relatively low base flow and shallow water depth or streams with highly variable flows or in areas prone to landslides or debris flows. (Where Applicable)
- Locate low-water crossings where stream banks are low with gentle slopes and channels are not deeply incised and design low-water crossing structures to maintain the function and bedload movement of the natural stream channel; locate unimproved fords in stable reaches with a firm rock or gravel base that has sufficient load-bearing strength for the expected vehicle traffic. (Where Applicable)
 - Construct the low-water crossing to conform to the site, channel shape, and original streambed elevation and to minimize flow restriction, site disturbance, and channel blockage to the extent practicable. (Where Applicable)
 - Use suitable measures to stabilize or harden the streambed and approaches, including the entire bankfull width and sufficient freeboard, where necessary to support the design vehicle traffic; use vented fords with high vent area ratio to maintain stream function and aquatic organism passage. (Where Applicable)
 - Construct the roadway-driving surface with material suitable to resist expected shear stress or lateral forces of water flow at the site. (Where Applicable)
 - Consider using temporary crossings on roads that provide short-term or intermittent access to avoid, minimize, or mitigate erosion, damage to streambed or channel, and flooding. (Where Applicable)
 - Design and install temporary crossings suitable for the expected users, loads, and timing of use and to pass a design storm determined based on local site conditions and requirements. (Where Applicable)
 - Install and remove temporary crossing structures in a timely manner as needed to provide access during use periods and minimize risk of washout. (Where Applicable)
 - Use suitable measures to stabilize temporary crossings that must remain in place during high runoff seasons; monitor temporary crossings regularly while installed to evaluate condition. (Where Applicable)
 - Remove temporary crossings and restore the waterbody profile and substrate when the need for the crossing no longer exists. (Where Applicable)

Road-8. Snow Removal and Storage

- Use existing standard contract language (C5.316# or similar) for snow removal during winter logging operations to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources. (Entire Sale Area)
- Move snow in a manner that will avoid or minimize disturbance of or damage to road surfaces and drainage structures. (*Entire Sale Area*)
- Conduct frequent inspections to ensure road drainage is not adversely affecting soil or water resources. (*Entire Sale Area*)
- Control areas where snow removal equipment can operate to avoid or minimize damage to riparian areas, floodplains, and stream channels. (*Entire Sale Area*)

- Install snow berms where such placement will preclude concentration of snowmelt runoff and will serve to dissipate melt water. (*Entire Sale Area*)
- Provide frequent drainage through snow berms to avoid concentration of snowmelt runoff on fill slopes and other erosive areas, to dissipate melt water, and to avoid or minimize sediment delivery to water bodies. (Entire Sale Area)

Fire and Fuels

Air Quality

• Reduce particulate emissions through utilization to the extent practical by considering biomass removal wherever feasible (*Entire Sale Area*)

Fire and Fuels

• Reduce and maintain hazardous fuel loadings to levels conducive to low intensity fire behavior. Where hazardous fuels are being treated, retain a percentage of debris and larger dead material for soil protection, establishment of trees, and small mammal habitat. Coordinate with District Resource Specialists and refer to BMPs to determine appropriate thresholds. (*Entire Sale Area*)

Air Quality

- All prescribed fire operations will adhere to the *Oregon Smoke Management Plan* to manage air quality. (*Entire Sale Area*)
- Human-caused visual impacts to the Three Sisters Wilderness area, a federally mandated Class I airshed will be restricted during the period of July 1 September 15 (*Entire Sale Area*)
- Human-caused visual impacts to the city of Bend, a state of Oregon designated smoke sensitive receptor area, will be avoided. Prescribed burning operations would occur only when winds and atmospheric conditions are conducive to limiting smoke intrusions within city boundaries. (*Entire Sale Area*)
- Warning signs will be posted at prominent road junctions to inform the public of prescribed burning operations, and will remain in place until there is no visible smoke. If feasible, roads may be temporarily closed for the protection of public safety. (*Entire Sale Area*)
- Interested parties will be notified prior to burning season and on the day of planned prescribed burning operations to mitigate potential negative economic effects and health effects to sensitive populations. (*Entire Sale Area*)

Prescribed Fire

- Conduct the prescribed fire in such a manner as to achieve the burn objectives outlined in the Prescribed Fire Burn Plan. (*Entire Sale Area*)
- Identify environmental conditions favorable for achieving desired condition or treatment objectives of the site while minimizing detrimental mechanical and heat disturbance to soil and water considering the following factors. (*Entire Sale Area*)
 - Existing and desired conditions for vegetation and fuel type, composition, structure, distribution, and density.
 - Short and long term site objectives.
 - Acceptable fire weather parameters.
 - o Desirable soil, duff, and fuel moisture levels.
 - Existing duff and humus depths.
 - Site factors such as slope and soil conditions.
 - Expected fire behavior and burn severity based on past burn experience in vegetation types in the project are
 - o Extent and condition of roads, fuel breaks, and other resource activities and values.

- Develop burn objectives that avoid or minimize creating water repellent soil conditions to the extent practicable considering fuel load, fuel and soil moisture levels, fire residence times, and burn intensity. (Entire Sale Area)
 - O Use low-intensity prescribed fire on steep slopes or highly erodible soils when prescribed fire is the only practicable means to achieve project objectives in these areas.
- Set target levels for desired ground cover remaining after burning based on slope, soil type, and risk of soil and hillslope movement. (*Entire Sale Area*)
- Plan burn areas to use natural or in-place barriers that reduce or limit fire spread, such as roads, canals, utility rights-of-way, barren or low fuel hazard areas, streams, lakes, or wetland features, where practicable, to minimize the need for fireline construction. (Entire Sale Area)
 - o Identify the type, width, and location of firebreaks or firelines in the prescribed fire burn plan.
- Use fire initiation techniques, control methods, and access locations for ignition and control (hold versus escape conditions) that minimize potential effects to soil, water quality, and riparian resources. (Entire Sale Area)
- Locate access and staging areas near the project site but outside of AMZ's, wetlands, and sensitive soil areas. (*Entire Sale Area*)
 - o Keep staging areas as small as possible while allowing for safe and efficient operations.
 - O Store fuel for ignition devices in areas away from surface water bodies and wetlands.
 - Install suitable measures to minimize and control concentrated water flow and sediment from staging areas.
 - o Collect and properly dispose of trash and other solid waste.
 - o Restore and stabilize staging areas after use (see BMP Veg-6 [Landings]).
- Conduct prescribed fires to minimize the residence time on the soil while meeting the burn objectives. (*Entire Sale Area*)
 - Manage fire intensity to maintain target levels of soil temperature and duff and residual vegetation cover within the limits and at locations described in the prescribed fire burn plan.
- Construct fire line to the minimum size and standard necessary to contain the prescribed fire and meet overall project objectives. (*Entire Sale Area*)
 - Locate and construct fireline in a manner that minimizes erosion and runoff from directly
 entering waterbodies by considering site slope and soil conditions, and using and
 maintaining suitable water and erosion control measures.
 - o Consider alternatives to ground-disturbing fireline construction such as using wet lines, rock outcrops, or other suitable features for firelines.
 - Establish permanent fireline with suitable water and erosion control measures in areas where prescribed fire treatments are used on a recurring basis.
 - Maintain firebreaks in a manner that minimizes exposed soil to the extent practicable.
 - o Rehabilitate or otherwise stabilize fireline in areas that pose risk to water quality.
- Conduct prescribed fire treatments, including pile burning, for slash disposal in a manner that encourages efficient burning to minimize soil impacts while achieving treatment objectives. (Entire Sale Area)
 - Pile and burn only the slash that is necessary to be disposed of to achieve treatment objectives.
 - o Locate slash piles in areas where the potential for soil effects is lessened (meadows, rock outcrops, etc.) and that do not interfere with natural drainage patterns.
 - o Remove wood products such as firewood or fence posts before piling and burning to reduce the amount of slash to be burned.
 - Minimize the amount of dirt or other noncombustible material in slash piles to promote efficient burning.

- o Construct piles in such a manner as to promote efficient burning
- Avoid burning large stumps and sections of logs in slash piles to reduce the amount of time that the pile burns.
- Avoid burning when conditions will cause the fire to burn too hot and damage soil conditions.
- o Avoid piling and burning for slash removal in AMZs to the extent practicable.
- Minimize effects on soil, water quality, and riparian resources by appropriately planning
 pile size, fuel piece size limits, spacing, and burn prescriptions in compliance with State
 or local laws and regulations if no practical alternatives for slash disposal in the AMZ are
 available.
- Evaluate the completed burn to identify sites that may need stabilization treatments or monitoring to minimize soil and site productivity loss and deterioration of water quality both on and off the site. (Entire Sale Area)
 - Provide for rapid revegetation of all denuded areas through natural processes supplemented by artificial revegetation where necessary.
 - Use suitable measures to promote water retention and infiltration or to augment soil cover where necessary.
 - O Use suitable species and establish techniques to stabilize the site in compliance with local direction and requirements per FSM 2070 and FSM 2080 for vegetation ecology and prevention control of invasive species.
 - Clear streams and ditches of debris introduced by fire control equipment during the prescribed fire operation.
 - o Consider long-term management of the site and nearby areas to promote project success.
 - Use suitable measures to limit human, vehicle, and livestock access to site as needed to allow for recovery of vegetation.

Mechanical Mowing and Mastication

- Evaluate multiple site factors, including soil conditions, slope, topography, and weather, to prescribe the most suitable mechanical treatment and equipment to avoid or minimize unacceptable impacts to soil while achieving treatment objectives. (*Entire Sale Area*)
- Provide for seasonal restrictions for any resources of concern and identify such concerns in Burn Plans. (*Entire Sale Areawhere appropriate*)
- Consider the condition of the material and the site resulting from the treatment in comparison to desired conditions, goals, and objectives for the site when analyzing treatment options (e.g., a mastication treatment will result in a very different condition than a grapple pile and burn treatment). (*Entire Sale Area*)
- Use land management plan direction, or other local guidance, to establish residual ground cover requirements and soil disturbance limits suitable to the site to minimize erosion. (*Entire Sale Area*)
- Consider offsite use options for the biomass material to reduce onsite treatment and disposal. (Entire Sale Area)
- Use applicable practices of BMP Veg-2 (Erosion Prevention and Control) to minimize and control erosion. (*Entire Sale Area*)
 - Conduct mechanical activities when soil conditions are such that unacceptable soil disturbance, compaction, displacement, and erosion would be avoided or minimized.
 - o Consider using low ground-pressure equipment to minimize soil disturbance.
- Operate mechanical equipment so that furrows and soil indentations are aligned on the contour. (Entire Sale Area)
- Scarify the soil only to the extent necessary to meet reforestation objectives. (Entire Sale Area)

- o Use site-preparation equipment that produces irregular surfaces.
- o Avoid or minimize damage to surface soil horizons to the extent practicable.
- Conduct machine piling of slash in such a manner to leave topsoil in place and to avoid displacing soil into piles. (*Entire Sale Area*)
- Re-establish vegetation as quickly as possible. (Entire Sale Area)
 - o Evaluate the need for active and natural revegetation of exposed and disturbed sites.
 - Use suitable species and establish techniques to revegetate the site in compliance with local direction and requirements per FSM2070 and FSM 2080 for vegetation ecology and prevention and control of invasive species.

Melvin Butte Vegetation Management Project

Final Environmental Assessment - Errata

- p. 16: Added text Rationale for the Purpose and Need for Action "The project meets a need to provide wood products to the local and regional economy as a byproduct of landscape level treatments. Timber products would generated through thinning of stands and take the form of sawlogs and biomass as an outcome of improving forest health and resiliency across the project area. Present net value analysis would be conducted to provide the decision maker an economic rationale, among others, for the selection of an alternative."
- p. 21: Change Text to: "Residual areas between clumps would be thinned and would serve as dispersal and foraging habitat for various wildlife species."
- p. 39: Change Text to: "Residual areas between clumps would be thinned and would serve as dispersal and foraging habitat for various wildlife species."
- p. 50: Table 10 Change unit 24 NWFP allocation from "Administratively Withdrawn (AWD)" to "Matrix".
- p. 183-187: Northwest Forest Plan C-44 Standard and Guideline. See attached supplemental information.
- p. 248: Missing text "A 400 acre post-fledging area was also identified adjacent to the nest core that would be excluded from treatment."
- p. 429: Missing text Harvest would remove 16 acres [unit 57] from the Potential Wilderness Area inventory; "this is about 0.22% of the entire 7,395 acre inventory and is not considred a substantial change in the robustness of the analysis."

Northwest Forest Plan Standard and Guideline C-44

The following supplemental information is provided to further clarify the Northwest Forest Plan (NWFP) C-44 standard and guideline analysis contained in the final environmental assessment for the Melvin Butte Vegetation Management Project (final EA pages 183-187). This supplemental information supports the original conclusion contained in the final environmental assessment by refining the definition of old-growth fragments to be used in a C-44 standard and guideline analysis in which 5th field watersheds contain less than 15% old growth fragments, further clarifies the minimum qualifying old growth fragment size, and demonstrates how the project would maintain and protect old growth fragments in the project area. (USDA Forest Service 1998).

It is important to note that this refinement does not change the conclusions contained in the original effects analysis and illustrates how a very conservative approach was taken in maintaining and protecting all old growth fragments in the Melvin Butte project area.

Table 1. Number and sizes of "old growth" fragments across the 1/5th field Deep Watershed

		Mean fragment size	Acres
0-2.49 acres (not considered in USDA Forests Service 1998)	90	0.5	43.6
2.5-10 acres (fragment)	14		
10+ acres (stand patch)	9	60.1	540.5
	113		662.1
Total (USDA Forests Service 1998)	23		618.5

Table 1 presents all old growth fragments, *regardless of size*, within the Melvin Butte Project area. Although fragments indicate a total of 662.1 acres only 618.5 acres (23 fragments) meet the C-44 definition of what is considred an old growth fragment (fragments ≥2.5acres:USDA Forests Service 1998). See Figure 1 for a map of the distribution of old growth patches and fragments in the Melvin Butte project area.

Retention and Protection

While other characteristics are attributed to old growth, large trees greater than 21"diameter at breast height (dbh) per acre are the primary minimum qualifying characteristic to determine if an area can be considered a fragment (or patch) and is the most conservative approach to old growth designation (Interim Old Growth Guide USDA 1993).

The Melvin Butte project takes an active management approach to retain and protect old growth fragments and patches as defined in the C-44 standard and guideline. This approach is designed to maintain and/or increase the ability of fragments and patches to maintain large trees (≥ 21" dbh) over the short and long term. By applying silvicultural prescriptions such as ladder fuels reductionand other density reduction strategies old growth fragments and patches are put on a

trajectory towards meeting the Historic Range of Variability (HRV) for species composition and provide for increased stand health and resiliency.

Late successional forest (i.e. fragments and patches) in the project area includes ponderosa pine as a dominant overstory tree subject to frequent, low intensity fire with old growth stages typically characterized by open understories and relatively few large fallen trees (as compared to more moist Doug-fir/ western hemlock types). Given that historic stand structures were dominated by ponderosa pine with minor inclusions of white-fir, for example, it is possible to remove larger than 21"dbh white fir trees (60-80 years old) when the frequency of 21"+ dbh trees per acre (TPA) are being met by ponderosa pine. Removing some but not all white-fir would move stand conditions towards a late successional fire disturbance influenced stand structure with a ponderosa pine overstory composition. In this way retaining and protecting fragments by the retention and protection of historic old large growth ponderosa pine would not change the designation of a C-44 stand patch or a fragment.

The following illustrates the different ways retention and protection of Melvin Butte old growth patches/ fragments are being met under both Alternatives 2 and 3. The acre proportions come from the 618.5 acres (23 fragments or stand patches) found within Melvin Butte project area. These are broken out by Alternative 2 treatment type. Total acres and proportion from total are presented in order to communicate the relationship of each treatment type by the sum total of 618.5 acres of old growth fragments within the project area (C-44 and USDA Forest Service1998).

- 1) Retention strategy and other areas (ex. Three Creek) that would not receive any vegetation management prescriptions (i.e. density reduction and prescribed fire).
 - a. 208.2 acres (33.7%) of the old growth fragments/ patches found within Melvin Butte project area are in these areas.
- 2) Restriction of treatments to prescribed fire and/or 8"dbh thinning limit in Prescribed Fire treatment units.
 - a. 193.6 acres (31.3%) of the old growth fragments/patches found within Melvin Butte project area are in these treatment areas and would not be impacted due to nature of small understory tree thinning and use of low intensity prescribed fire. Therefore patches and fragments, while treated, would retain old growth characteristics and meet the definition post treatment while also resulting in stands more resilient to insects and disease.
- 3) Unit by unit silvicultural implementation prescriptions that describe retention of old growth structure, composition (and accentuation) where present. Retention to include old growth ponderosa pine and old growth white fir and other species (where present) to a frequency that maintains large tree structure/ frequency across stands and maintains the definition as described in the Interim Old Growth Definitions (USDA 1993).
 - a. 191.3 acres (30.9%) of the old growth patches/ fragments acres are contained in the Thinning treatment description areas.

- i. All prescriptions call for the retention and/or accentuation of old growth trees to maintain or exceed definitions (VanPelt 2008, USDA 1993). These areas are dominated by large ponderosa pine (Table 4 below) at or above the minimum number for a fragment/ stand patch designation where this is not the case (EA unit 113)a 21"dbh limit is imposed. Removal of large white fir does not impact the fragment/ stand patch designation and remain old growth after treatment.
- b. 14.8 acres (2.4%) of the old growth patches/ fragments acres are contained in the Mixed Conifer Group Opening treatment areas.
 - i. All prescriptions call for retention of old growth ponderosa pine. Any and all openings would maintain ponderosa pine tree composition and structure. Any and all group openings that are also contain a fragment/ stand patch have a 21"dbh limit and fragments would remain old growth after treatment.
- c. 10.7 acres (1.7%) of the old growth patches/ fragments are contained in the Plantation treatment areas.
 - Plantation thinning does not include overstory removal as such no old growth will be cut in plantations; often times this number represents trees detected on the boundaries of these areas. Boundary trees may be pruned if infected with dwarf mistletoe.
- d. All other treatment areas ("Lodgepole Pine Improvement", "Scenic Views Enhancement", "Dwarf mistletoe") do not contain >2.5 acre fragments.

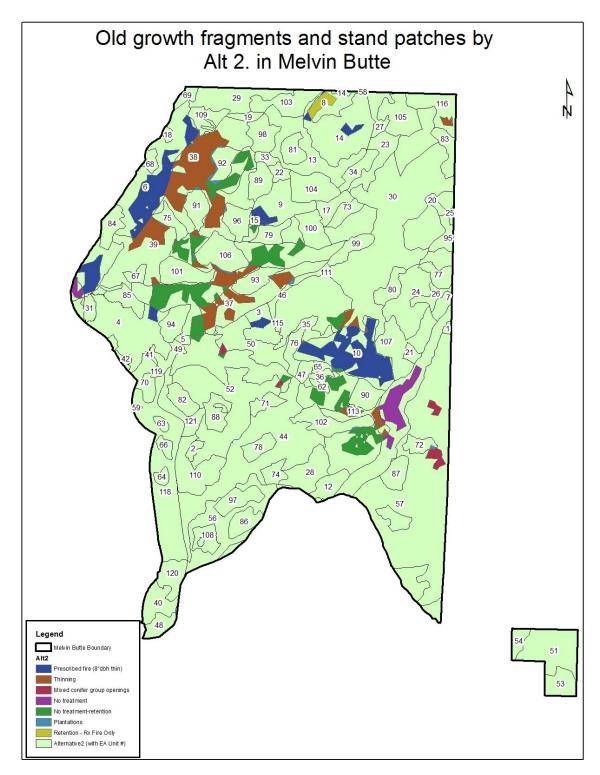


Figure 1: Old growth fragments and stand patches by Alternative 2 in the Melvin Butte project area.

Table 2. Acres and proportions of the large tree patches/ fragments among different "subareas" within the

	Acres	Old growth fragments/patches acres (Lidar determined based on large trees/acre)	Proportion of area with old growth patches/fragments (%)
Deep Canyon watershed	97,509	1,188	1.2%
Applicable assessment area due to pertinent biophysical environment	60,712	1,188	2.0%
FS land with pertinent biophysical environments	49,601	1105	2.2%

Deep Canyon watershed.

Table 3. Acres and proportions of the large tree patches/ fragments among the Melvin Butte treatment types.

	Total Acres	Old growth fragments/stand patches acres using 1998 memorandum letter (Lidar determined based on large trees/acre)	Proportion of Melvin Butte old growth fragment/ stand patches acres using 1998 memorandum letter by Alt 2. Treatment type ¹ acres	EA units associated with fragments or stand patches*
Melvin Project	5,375	618.5	N/A	N/A
Retention strategy, no treatment and no thinning treatment areas	940	208	34%	8 (retention prescribed fire- without any thinning), all others do not have an EA unit number assigned.
Plantations	1174	11	2%	65, 72, 75, 76, 91, 92, 93, 96, 100, 101, 102, 106, 107, 109, 111
Prescribed fire (includes small tree thinning)	809	194	31%	3, 4, 6, 9, 10, 13, 14, 15
Dwarf Mistletoe	160	0	0%	N/A
Mixed Conifer Group Openings	835	15	2%	46, 50, 52, 57
Scenic Views Enhancement	240	0	0%	N/A
Lodgepole pine improvement	249	0	0%	N/A
Thinning	998	191	31%	30, 36, 37, 38, 39, 113, 116

^{*}EA units are listed based on the presence of fragments or stand patches. In no case are any of the associated EA units comprised wholly as a fragment or stand patch.

Stand Patch or Fragment Treatments

Direct and Indirect Effects

Stand patches or fragments in Retention Strategy and/or No Treatment areas (208 total acres)

¹ NOTE-this table is identical among Alternatives EXCEPT acre contribution from Mixed Conifer Group Openings AND Dwarf Mistletoe are added to the Thinning treatment type under Alternative 3.

The stand patches and/or fragments in the retention strategy and no treatments areas would retain their existing condition in the short-term. The exception is EA unit 8 with 30 acres of broadcast burning without an associated thinning. Stand density measures and potential fire behavior would remain high in these areas over time and are discussed in the final EA (final EA pages 176 and 179). However, due to density reduction and tree species composition changes in surrounding areas/units it is expected that these areas would be likely be maintained over time. In the event an insect outbreak (western bark beetle, mountain pine beetle) or fire ignition (fire brand or otherwise) within these stand patches or fragments it is expected that these areas would succumb to a high insect host affinity or high severity fire event due to density or fuel continuity metrics respectively.

Stand patches or fragments in the Thinning areas (191 total acres)

Silvicultural prescriptions call for the retention of all old growth ponderosa pine or 21"dbh ponderosa pine, whichever occurs first. Since these areas only have a minor component of white fir over 21"dbh (Table 4) prescriptions call for removal of white fir over 21"dbh that do not impact the stand patch or fragment designation and move stands to species proportions more in line with the desired future condition and HRV. Where white fir is a part of the large tree component that contributes to the designation of it being a fragment (example EA unit 113), the entire unit has a 21" diameter limit which maintains the fragment as an old growth fragment or patch. Table 4 is presented to depict the number 21"dbh TPA by white fir and ponderosa pine for the fragments and/or patches in the EA units. Under either action alternative, density reductions would occur and leave patches with lower risk for bark beetle and stand replacement fire (final EA pages 176 and 179) while simultaneously maintaining the fragment or stand patch designation. After completion of proposed action treatments in the "Thinning" treatment type all fragments and stand patches would be retained and protected and there would be no loss of late successional old growth.

Table 4. EA unit and setting ID's associated with stand patches or fragments for the "Thinning" treatment areas.

EA Unit	Setting ID	TPA 21"+dbh ponderosa pine	TPA 21"+dbh white fir	Considerations to meet C-44 S&G for fragment/ stand patch retention	
30	06010505380015455	33	2	These fragments/ stand patches are	
	06010505380011777	16	0	dominated by ponderosa pine in trees	
37	06010505380010905	43	2	>21"DBH. Prescription elements retain all ponderosa pine >21"DBH or those with	
38	06010505380010888	27	0	old growth characteristics (Van Pelt 2008).	
30	06010505380010891	25	0	Removal of >21"DBH white fir does not	
	06010505380011294	24	3	change status of fragments (due to	
39	06010505380010904	19	1	presence of large ponderosa pine). Activities in units retains and protects to late successional character of these un	
113	06010505380011787	11	5	Silv prescription has a 21" DBH limit on	

				entire unit (all species)
116	06010505380011760	5	0	There are no white fir >21"dbh. Fragment present will be maintained by prescription elements of retention of all ponderosa pine >21"dbh.

Stand patches or fragments in the Mixed Conifer Group Opening areas (15 total acres)

The mixed conifer group opening treatment type only contains fragments (as none exist >10 acres). Within these fragments no trees over 21 inches dbh would be cut or removed whether in a group opening or not. Under Alternative 2, density reduction and changes to potential fire type move to 33% maximum of the stand density index (SDI) and lower the potential for an active crown fire (final EA pages 176 and 179 respectively). After completion of thinning in the "Mixed Conifer Group Opening" treatment type all fragments and stand patches would be retained and protected and there would be no loss of late successional old growth.

Stand patches or fragments in the Prescribed Fire areas (194 total acres)

The prescribed fire treatments provide for small tree thinning (up to 8"dbh limit on any species) with a follow up fuels treatment (hand pile burning and/or broadcast burning). Thinning small diameter ladder fuel trees would reduce the potential for active crown fire with a minor reduction in overall stand density. Due to a slight improvement in density reduction continued density dependent mortality (i.e. bark beetles) is expected in the near term as the maximum SDI is just below (53%) the upper management zone of 60% (final EA page 176 and Powell (1999)). Due to nature of small tree thinning all stand patches and fragments within the "Prescribed fire" areas would be retained and protected and there would be no loss of late successional old growth.

Stand patches or fragments in the Plantation areas (11 total acres)

The plantation treatment areas consist of understory thinning that maintains the largest trees of any species on the site. No overstory removal (which includes 21"dbh or larger) is associated with this treatment type. Stand density and potential for active crown fire would be reduced allowing small trees to mature and develop under lower risk while simultaneously retaining any of the fragments or stand patches (final EA pages 176 and 179 respectively). Following implementation and due to nature of understory thinning any fragments that are contained within the plantation treatment type would not be effected. There would be no loss of late successional old growth.

Stand patches or fragments in Dwarf Mistletoe, Scenic Views Enhancement, Lodgepole Pine Improvement areas (0 total acres)

No fragments or stand patches occur with these areas. As such there are no direct, or indirect effects from the proposed (or alternative) action.

Alternative 2 and 3 Similarities and Differences

Alternative 2 and Alternative 3 are nearly identical in tree retention proportions and needs and meet the intent of the C-44 Standard and Guideline. One difference in Alternative 3 is the "Thinning Treatment" (Item 3a above) increases the number of acres to 206.0 (33.3%) as old growth patches/fragments acres from Mixed Conifer Treatments are now reclassified as a "Thinning Treatment". Under Alternative 3, Items 3b (above in this section) are not applicable. Thus unit by unit silvicultural prescriptions (Item 3ai) describes how old growth fragment/ patch retention and protection would occur in these combined areas.

In either alternative, there would be no reduction in the acreage of old growth fragments or patches; all areas would be retained and protected, even with treatment. Treatments focus on reducing stand densities to protect residual trees such as ponderosa pine and other fire resistant species that would normally be found in a fire climax ecosystem. Removal of white-fir, while large in diameter, are relatively young in age (60-80 years) compared to ponderosa pine. White-fir have increased in density on the landscape when compared to the HRV and contribute to reduced health and resiliency of ponderosa pine trees that are greater than 150 to 300 years old.

Cumulative Effects

The cumulative effects boundary is the 5^{th} field Deep Canyon Watershed. The time frame is the next ten years.

Cumulatively there will be no change in the number or size of fragments or stand patches in the 5th field watershed. Treatment and/or unit level diameter restrictions, large ponderosa pine tree dominance in fragments (carrying the number of large trees/acre to be old growth fragments/ stand patches), and design of no treatment or retention strategy maintains and protects the fragments and/or stand patches in the Deep Canyon Watershed. Cumulatively there would be no loss of late successional old growth in the watershed over the short or long term.

Conclusion

Project design in association with site specific silvicultural prescriptions maintains and protects all old growth fragments and patches in the Melvin Butte project area. Cumulatively there would be no loss of late successional old growth over the short or long term. The project meets the intent of the NWFP C-44 standard and guideline which requires the retention of old-growth fragments in watersheds where little remains.

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